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Description

SWIMMING POOL COVER STRUCTURE

Cross Reference to Related Applications

[0001] This application claims the benefit of U.S. Provisional Application No. 60/319,554, filed September 17, 2002.

Background of Invention

Field of the Invention

[0002] The present invention generally relates to protective structures for swimming pools.

Description of the Related Art

[0003] Known swimming pool covers include mats and liners that lay or float on the water surface, and metal frames that support a sheet or fabric material above the water surface. However, existing metal frames have limited strength, and therefore are typically used to support only a light plastic cover and not a heavier cover suitable for use in the winter. Even when a light plastic cover is used, existing metal frames are often not sufficiently strong to withstand

strong winds or snow accumulation that may occur during the winter. In addition, existing metal frames tend to corrode if left in place over the winter, and can scratch the plastic railings that typically surround pools.

SUMMARY OF INVENTION

[0004] The present invention is a pool cover structure suitable for use in all seasons. The structure serves to block out hot sun rays and impede the evaporation of pool chemicals during the summer, exclude leaves, dirt and grime during the off season, and is sufficiently sturdy to support a winter cover and withstand wind, snow and rain.

[0005] The pool cover structure comprises a frame and cover. The frame has a semispherical shape with a height-to-diameter ratio of at least 1:3, and is constructed of a plurality of plastic tube sections interconnected together such that the frame comprises at least first and second circular portions that are substantially concentric with each other and a peak section that is substantially concentric with the first and second circular portions and defines the uppermost extent of the frame. The first circular portion is a lowermost base of the frame and is adapted for supporting the frame on a railing of the swimming pool. The frame further comprises a first series of sup-

ports that directly connect the second circular portion to the first circular portion so as to space the second circular portion above the first circular portion, and a second series of supports interconnecting (i.e., directly or indirectly connecting) the second circular portion with the peak section of the frame. The first series of supports are present in the frame in a greater number than the second series of supports. At least one of the first series of supports is removable from the frame. The cover is supported by the frame so as to define a semispherical enclosed space. Access can be gained to the enclosed space by removing the at least one support of the first series of supports.

[0006] In view of the above, it can be seen that a significant advantage of this invention is that the frame is lightweight and corrosion-resistant as a result of its plastic construction. Because the tube sections that define the base of the structure are made of plastic, they are less likely to damage plastic railings that typically surround aboveground swimming pools. The frame is also lower in cost and easier to assemble and disassemble than metal frames of the type used as pool covers. Notably, because a portion of the frame can be removed to permit access to the pool, the pool can be used without necessitating removal of the

entire frame and cover, and without compromising the strength of the frame.

[0007] Other objects and advantages of this invention will be better appreciated from the following detailed description.

Brief Description of Drawings

[0008] Figure 1 shows a pool cover structure comprising a frame and cover in accordance with a preferred embodiment of the present invention, with a portion of the cover omitted to reveal the frame.

Detailed Description

[0009] Figure 1 is a partial sectional view of a pool cover structure 10 that comprises a plastic frame 12 adapted for supporting a cover 14 formed of a sheet or fabric material above the surface of water contained in a pool 16, represented in Figure 1 as a circular-shaped aboveground pool. The cover 14 may be a light summer cover or a heavier winter cover, and is preferably capable of blocking sun rays, impeding evaporation of pool chemicals, and excluding leaves, dirt and grime from the pool 16.

[0010] The frame 12 is represented as being constructed of straight sections of plastic tubes 18 and fittings 20, all of which can be formed of PVC or another appropriate mate-

rial. The frame 12 is depicted as having eight radial portions 22 (five of which are visible) that extend in a generally radial direction from a central peak 26 of the frame 12, and five concentric circular portions 24 that extend in a generally circumferential direction of the frame 12. The circular portions 24 are interconnected with the tubes 18 that make up the radial portions 22 so that the frame 12 is generally semispherical or dome-shaped. The uppermost/innermost circular portion 24 defines the peak 26, which establishes the highest elevation of the frame 12. The lowermost/outermost circular portion 24 defines a base 28 adapted for supporting the frame 12 on the pool railing 30. The base 28 is shown as secured with straps 32 to the railing 30. A first series of tubes 18 forming the radial portions 22 of the frame 12 directly connects the base 28 to the circular portion 24 immediately above the base 28 so as to space the circular portion 24 above the base 28. Thereafter, each of the circular portions 24 is directly connected to its adjacent circular portion 24 with additional series of tubes 18 forming the radial portions 22, so that adjacent circular portions 24 are spaced apart from each other.

[0011] According to a preferred aspect of the invention, the

frame 12 has a height-to-diameter ratio of at least 1:3, preferably about 1:3.5, in order to accommodate and support heavier winter covers. For example, a suitable height for the frame 12 is about six feet (about two meters) for a circular pool 16 having a diameter of about twenty feet (about seven meters). According to another preferred aspect of the invention, the first series of tubes 18 supporting the circular portion 24 immediately above the base 28 are present in the frame 12 in a greater number than the remaining series of tubes 18 making up the radial portions 22, so that the interconnection between the base 28 and the immediately adjacent circular portion 24 is reinforced. As depicted in Figure 1, there are three tubes 18 in the first series of tubes 18 (between the base 28 and immediately adjacent circular portion 24) for every tube 18 in each series of tubes 18 between the remaining circular portions 24.

[0012] Another preferred aspect of the invention is that at least one of the first series of tubes 18 between the base 28 and its immediately-adjacent circular portion 24 is removable from the frame 12, such that removal of these removable tube 18 enables access to the enclosed space beneath the cover 14. In Figure 1, two tubes 18 of the

second circular portion 24 and three tubes 18 that support the second circular portion 24 above the base 28 are indicated as being removable as a result of the tubes 18 being connected with fittings 20. Though not shown for simplicity, the entire construction of the frame 12 is preferably made by individually connecting the tubes 18 with the fittings 20. To ensure the integrity of the frame 12, the tubes 18 and fittings 20 can be configured or assembled so that only certain tube-and-fitting joints can be disassembled to create an access to the space enclosed by the frame 12 and cover 14. For example, all but the tube-and-fitting joints desired to be disassemblable could be held together with an adhesive. Alternatively, all of the tubes 18 and fittings 20 could be held together with only an interference fit so that the entire frame 12 can be disassembled.

[0013] While the invention has been described in terms of a preferred embodiment, it is apparent that other forms could be adopted by one skilled in the art. Therefore, the scope of the invention is to be limited only by the following claims.